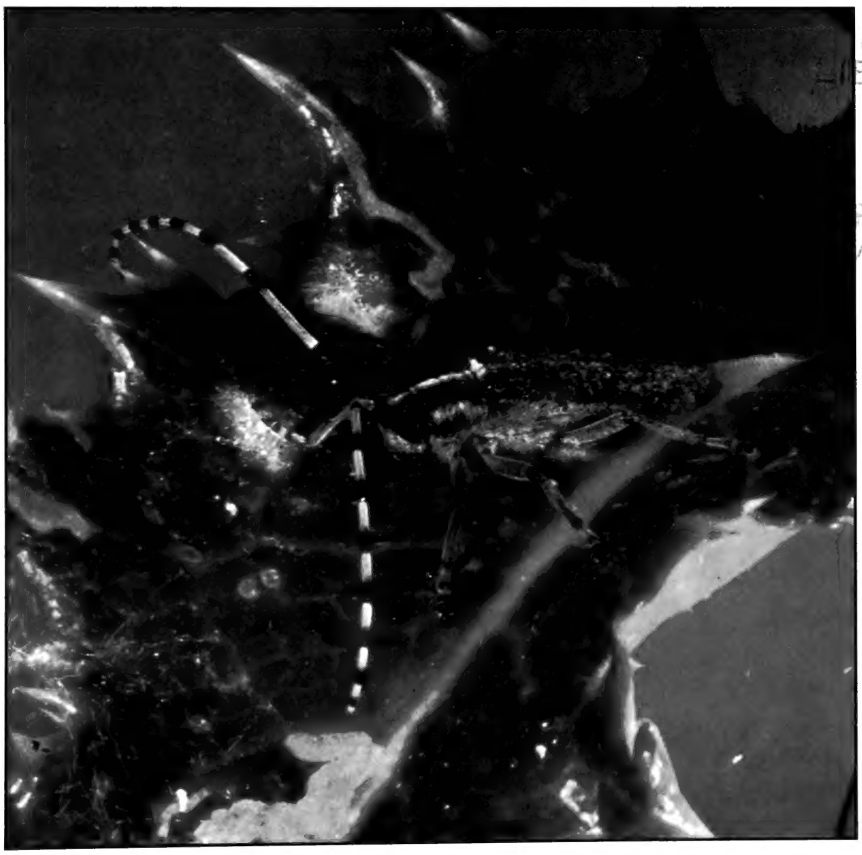
Invertebrate Conservation News

Number 70 February 2013



ISSN 1356 1359

Editor David Lonsdale

A publication of The Amateur Entomologists' Society

Founded 1935

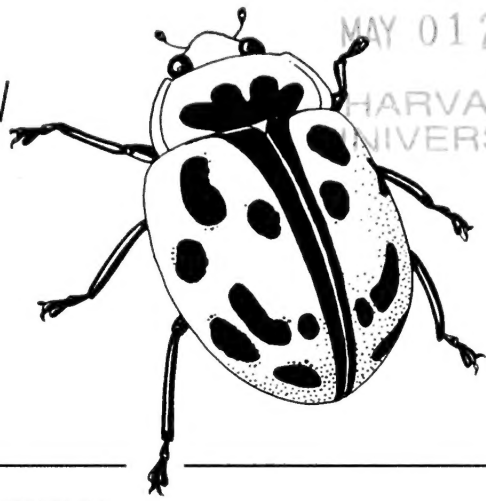
Where to write

For all *ICN* business, please write to:

AES
P.O. Box 8774
London
SW7 5ZG

ICN is printed by Cravitz Printing Co. Ltd., 1 Tower Hill, Brentwood, Essex CM14 4TA.
Cover designed by Wayne Jarvis.

INVERTEBRATE CONSERVATION NEWS



No. 70, February 2013

EDITORIAL

In the early days of *ICN*, a wide range of human economic activities could readily be criticised as being harmful to invertebrate populations and generally unsustainable. In those days, there was a difficult but fairly uncomplicated uphill struggle against sheer ignorance of environmental issues. It was clearly a "good thing" to argue in favour of doing things in a more environmentally-friendly manner, whether in agriculture, manufacturing industry, power generation, transportation or in other economic activity.

Eventually, the need to manage natural resources in a sustainable manner could no longer be ignored by politicians, journalists and other people with power or influence. They have often acknowledged this need through mere lip service but they have also "signed up" to various international commitments in relation to carbon emissions, biodiversity and other environmental issues. Also, various forms of new technology have provided ostensibly cleaner and safer methods of growing crops and manufacturing goods. Meanwhile, however, the situation is almost certainly worsening, with the expansion of industry in the "emerging economies" and the continued increase in the human population.

With the increasing adoption of "greener" technologies as governmental policies, there has been much blurring of the distinction between the good and the bad. In this issue of *ICN*, for example, we mention a report that criticises a plan to use trees as biofuel in order to help reduce carbon emissions from fossil fuels. Anyone who is concerned about adverse effects of climate change on wildlife might in principle welcome a reduction in dependence on fossil fuels but it now seems that biofuels could make matters worse in the short to

medium term; i.e. just when emissions need to be reduced in order to prevent us from passing the threatened climatic "tipping point".

As mentioned previously in *ICN*, other methods of power generation, such as the use of solar panels or wind turbines can also destroy invertebrates, by trapping them in vast numbers (even to the extent of drastically impairing the efficiency of turbines, which could be a blessing in disguise if it leads to the design of more "insect-friendly" turbine blades). Also, hydro-electric schemes (a long-established source of "clean energy") can be very harmful where they involve the flooding of rare biotopes. And, of course, nuclear power is not without its problems. We cannot ignore such issues if we wish to argue in favour of reducing our dependence on carbon-based fossil fuels.

The theme of growing complexity and uncertainty is highlighted also by our long-running story about neonicotinoid insecticides. We were rightly concerned about the dangers of some of the insecticides that were developed in the middle of the last century; especially the very persistent organochlorine compounds such as DDT and the organophosphates, some of which were developed as an offshoot of chemical weapons research and are thought to have caused serious health problems in people cumulatively exposed to them.

The more recently developed neonicotinoids, although relatively persistent, are less toxic to mammals than the organophosphates and do not seem to accumulate in food chains as much as the organochlorine compounds. And yet, their potency and their capacity to be translocated throughout a plant, even into the pollen and nectar, seem to create special problems for non-target invertebrates. If, as suspected, they have played a part in causing the apparently large reductions in insect populations, a ban on their use seems worth campaigning for. But, a return to the widespread use of organophosphates could be a retrograde and dangerous outcome.

Although politicians and other decision-makers are now proud to show "green credentials", many of them lack the technical knowledge required to identify aspects of their policies that are far less "green" than might superficially appear to be the case. For example, as mentioned in this issue of *ICN*, schemes to encourage healthy recreation in the countryside can result in the unnecessary destruction of wildlife habitats. Sadly, however, such destruction can be dismissed as insignificant if it happens not to involve the larger and showier forms of wildlife in any manner that would inflame the concerns of the electorate.

NEWS, VIEWS AND GENERAL INFORMATION

Recent report on implications of climate change: the Europe of the future might be quite different

Climate change has often been mentioned in *ICN* (e.g. in the editorial of *ICN* 67) but mainly in a speculative context, since there is much uncertainty in the various predictions. We can, however, draw attention to a weighty report that was published in November 2012 by the European Environment Agency (EEA, 2012). The review, entitled *Climate change, impacts and vulnerability in Europe 2012*, is based on a huge amount of data collated across Europe about "Essential Climate Variables" and it assesses the implications for everything from tourism and socio-economics to agriculture and biodiversity. In particular, it includes some stark projections about human society and European ecosystems.

Although the main document is far too chunky for casual reading, there is an excellent "Executive Summary", in which one image in particular pulls all the data together about the future for the European climate. Situated on page 27, Map TS.1 offers a summary of observed and projected changes across the whole of the Continent. The UK features alongside other North-western countries, for which the changes expected include: an increase in winter precipitation; increase in river flow; northward movement of species; decrease in energy demand for heating (i.e. through higher average annual temperatures); increasing risk of river and coastal flooding. The text and the useful table on the preceding pages explore this information in more detail.

Experiences of the storms and consequent flooding in the UK during 2012 (especially in the last quarter) could be a warning of longer-term changes in our regular seasonal patterns, along with the consequences for our wildlife. The latter can be seen in the consistently poor moth numbers recorded over the summer (see for instance Paul Waring's Wildlife report in the December 2012 edition of British Wildlife journal) and the reduced records for true flies (Diptera) noted by Alan Stubbs in the same journal.

In the UK, the northward movement of species featured in the European Environment Agency report is being tracked for a number of insect taxa. For example, these include two well documented Hymenoptera that were previously known only on the Continent, the Tree bumblebee *Bombus hypnorum* and the Median wasp *Dolichovespula media* (see BWARS website: www.BWARS.com). We

can expect other continental species to become established and to spread within the UK if our climate continues to warm as predicted. Interactions between climate change and other factors affecting habitats will also affect distributions of "native" taxa, already seen, for instance, in the recent spread of Roesel's bush cricket *Metrioptera roeselii* and the Long-winged Conehead *Conocephalus discolor* [e.g. see CEH (2008)]. Another example is the rapid colonisation northwards of the Brown Argus butterfly *Aricia agestis* [see BC (2012)].

So, what does this mean for our UK ecosystems and for invertebrate conservation specifically? The report records changes in several variables:

> "the observed shifts in phenology for plants and animals, in particular the reduction in the seasonal relationships (e.g. flowering, nesting, migrating out of synch with historic seasonal variations);
>
> "changes in distribution and abundance of plant and animal species; in particular the expansion in range (mainly northwards) of certain species (including insect vectors that spread diseases of humans and other vertebrates) but not of others that appear unable to keep pace with the rate of change;
>
> "the extinction of certain species through loss of habitat as a result of higher temperatures and invasion of temperate species (the more vulnerable taxa include alpine and arctic species and also marine species, which are affected by acidification and changes in phytoplankton)."

Locally, changes in average temperature and greater fluctuations in weather are likely to have a particularly severe impact on species that are likely to be out-competed by more robust species that can benefit from such changes. The vulnerable species include those "native" species already on the edges of their natural ranges, together with those already affected by habitat degradation and/or fragmentation and those that cannot adapt fast enough.

The report shows that extreme weather events are not necessarily the outcome of the observed and projected climate change but that seasonal and longer term changes will probably play a bigger part, with increased desertification in southern Europe and loss of permafrost, glaciers and sea-ice in the far north, putting pressure on ecosystems, agriculture and human society over the next 100 years or so. In the UK, milder, wetter weather and a changing habitat mosaic could make conservation of our "native" flora and fauna ever harder, with opportunistic colonisers becoming dominant at the expense of others that will become extinct.

This does, of course, raise questions in particular about the future of species reintroduction and conservation programmes, where considerable effort is expended often to maintain a fragile, isolated species that could not survive without our intervention.

References

BC (2012). http://butterfly-conservation.org/48-1436/butterflies-adapt-diet-in-response-to-cliamte-change.html

EEA (2012). http://www.eea.europa.eu/publications/climate-impacts-and-vulnerability-2012

CEH (2008). http://www.ceh.ac.uk/news/news_archive/2008_news_item_30.html)

Biofuel for electricity generation: criticism of UK policy

As mentioned in many issues of *ICN*, climate change is a major consideration in the conservation of invertebrates. Relatively mobile species can adapt to climate change by dispersing into areas that are becoming more suitable for them. Many others are, however, likely to undergo severe decline, especially in countries where their dispersal is limited by a plethora of artificial barriers. Although there seem to be few such barriers that could affect the dispersal of birds, climate change is of considerable concern to one of the most powerful conservation organisations, the Royal Society for the Protection of Birds (RSPB).

In a recent report, the RSPB has criticised the UK government's policy of increasing the use of whole trees as biofuel for power generation. The policy is intended to contribute towards the UK's commitment to reduce carbon emissions and thus to help mitigate climate change. But there has been some research, cited by the RSPB, together with Friends of the Earth and Greenpeace, that indicates that the policy will not provide the intended benefits. Indeed, the RSPB concludes that the use of whole-tree biofuel will lead to an increase in the total amount of carbon released into the atmosphere, compared with the use of coal.

It might seem surprising that biofuel is worse than coal with regard to carbon emissions. The burning of coal releases carbon that has been locked up in fossil form for hundreds of millions of years. This is the cause of the well-known increase in the concentration of atmospheric carbon dioxide. This, in turn, leads to an increase in the rate of carbon fixation by photosynthesis but there is also an increase in the rate of decomposition of organic matter, which releases much of the extra carbon back into the atmosphere. In contrast, the amount of carbon

released from biofuels is, theoretically, balanced by the absorption of an equal amount of carbon by photosynthesis. This amounts to about 1.8 tonnes of carbon dioxide (equivalent to 0.49 tonnes of carbon) for each tonne of dry wood. The RSPB believes, however, that the UK government is wrong to assume that this carbon emission (known as the "carbon debt") can be disregarded when the overall emissions are estimated.

The problem with the "carbon debt", argues the RSPB, is that it is not "repaid" for a long time, so that a period of about 100 years will elapse before the effect of burning conifer biofuel will be no worse than that of burning the equivalent amount of coal. The reason for this long delay is that forests do not absorb additional quantities of carbon dioxide in response to the removal of some of the trees for biofuel. If these trees were not removed, they would continue to lay down annual increments of wood, thus adding to their storage of carbon. Later, the wood could be converted into durable products such as building materials or furniture, which represent a long-term store of carbon. If, on the other hand, the trees are allowed to decline and eventually die, their carbon is eventually released naturally back into the atmosphere by wood decay.

Another factor in the carbon budget is the additional carbon (derived mainly from fossil fuels) that is released as a result of transporting and processing wood to be used as biofuel. There is also a less obvious problem, according to the RSPB report, in the form of "product substitution". This occurs where the use of tree stems for biofuel leads to a shortage of cheap timber. As a result, "energy-intensive" materials, such as concrete or metal, are increasingly used as substitutes.

Owing to the complications of the time factor, and of "product substitution" there is evidently room for argument about the short- and long-term implications of using biofuel for power generation. There are also other causes for argument, such as the change of land use in order to produce more biofuel, whether as wood, herbaceous biomass or plant oil. The RSPB is, however, probably right to point out that it is better to lock carbon up in durable products than to release it into the atmosphere at a time when we urgently need to reduce emissions.

Reference

RSPB (2012). Dirtier than coal? Why Government plans to subsidise burning trees are bad news for the planet.

http://www.rspb.org.uk/Images/biomass_report_tcm9-326672.pdf

More ragwort misinformation

Almost ten years after the Ragwort Act 2003 in the UK, there is still a steady flow of inaccurate and misleading statements about a supposed requirement to eradicate populations of this native plant, *Senecio jacobaea*, regardless of the limited circumstances under which there is a basis for doing so, either in law or according to any proper assessment of risk of livestock poisoning.

A reader of our more recent reports of misinformation about ragwort (see *ICN* 65 and 67) has drawn our attention to a short item in the latest issue (March 2013) of *Countryside* magazine, published by the National Farmers' Union (NFU). The item appears almost innocently on the Countryside News and Views page, which carries some "eco-friendly" items about disappearing wildflowers, protection of bees and help for hedgehogs. In the wildflower section, however, there is a quotation from Helen Robinson, the NFU Countryside Adviser, about eradication of ragwort from road verges. This states that local authorities need to remove injurious weeds such as ragwort, where these are found in roadside verges. The reason for eradicating such weeds is stated as follows: "*to prevent their spread to agricultural land, particularly areas used for livestock grazing...*". This implies that ragwort and other "injurious weeds" should always be eradicated from roadside verges, just in case they might spread to agricultural land. In reality, however, the law provides only for a landowner to be served with an order to take action against the spread of ragwort under certain circumstances.

The report about the NFU magazine prompted a look at the very useful blog that we cited in *ICN* 65; this can be found at: ragwort-hysteria.blogspot.co.uk. The blog mentions one offending item that came from an otherwise authoritative source; i.e. the Natural Environment Research Council (NERC), which is a UK government agency. NERC's "Planet Earth Online" website carried an interesting story about the spread of plant seeds in the slipstream of road vehicles. This is of genuine concern in relation to the potential spread of alien invasive species and perhaps also in relation to the spread of ragwort in instances where there might be a valid cause for concern, based on correct implementation of the law. Unfortunately, the NERC story misrepresented the law by stating simply that plants such as ragwort "*must not be allowed to spread*". NERC corrected this statement on 30th January and also explained why the correction was necessary.

Correct information about ragwort in the UK can be found at the following websites: www.ragwortfacts.com and www. ragwort.org.uk

SITES AND SPECIES OF INTEREST

Re-discovery of Mediterranean oil beetle in UK

Buglife – The Invertebrate Conservation Trust has reported a finding of the Mediterranean oil beetle *Meloë mediterraneus* in the UK, the first since 1906. The finding took place during a study on behalf of Buglife by a local naturalist, John Walters, on National Trust land between Bolt Head and Bolt Tail on the south Devon coast. Identification was confirmed by Darren Mann of the Oxford University Museum of Natural History. Records until 1906 had been confined to Essex and Kent.

The Mediterranean oil beetle resembles another rare British species, the Rugged oil beetle *Meloë rugosus*, but it is considerably larger, with a body length between 2 and 3 cm. Its re-discovery restores the number of known extant British oil beetle species to five, compared with eight that were regarded as native according to old records. Another of the five, the Black oil beetle *Meloë proscarabaeus*, has also recently been found in a Buglife survey in eastern England after many years with no sightings, as mentioned in *ICN* 68. Also, the rare Short-necked oil beetle *Meloë brevicollis* was recorded a few years ago from the same area of south Devon.

Buglife's national oil beetle conservation project is run in partnership with the National Trust and Oxford University Museum of Natural History and is funded through Natural England's Species Recovery programme. The aim is to improve knowledge in order to help conserve oil beetles. Sightings of oil beetles in the UK can be reported via the Buglife website (www.buglife.org.uk/oilbeetles), where there is also a free oil beetle identification chart.

Hampshire heathlands: cycle tracks and ground nesting invertebrates

In much of south-east England, intensive land use for agriculture, housing, industry and transport has resulted in widespread destruction and fragmentation of wildlife habitats. Considerable areas of infertile land have, however, remained free from such intensive use and thus continue to support a wide range of invertebrates that have become rare elsewhere. These areas consist mostly of heathlands in the counties of Surrey and Hampshire and lie either on the Lower Greensand or younger rocks such as the Bagshot and Bracklesham Beds.

Extensive tracts of the Surrey and Hampshire heathlands were acquired for military training grounds many years ago and were thereby protected from other land-use developments that might otherwise have occurred. With a shrinking army and with a need to balance its budget, the UK Ministry of Defence is, however, disposing of some of these areas, thus making them available for housing and other developments. In particular, a new "eco-town" is being planned in the Bordon and Whitehill area of East Hampshire. This plan has been criticised by entomologist Stephen Miles, who is especially concerned about the many invertebrates that require bare ground for their nest sites. These include tiger beetles, solitary bees and wasps and their parasites.

In a recent submission to local planners, Stephen acknowledges that certain scheduled sites are to be protected from the eco-town development because they are occupied by protected vertebrates, such the Sand Lizard *Lacerta agilis* and the Natterjack toad *Epidalea calamita*. He is, however, concerned both about the plans to build high-density housing on extensive areas of heathland nearby and also to "improve" footpaths, tracks and bridleways that provide bare ground habitats. He explains that areas of bare ground were traditionally maintained by people exercising commoners' rights to cut turf or peat for fuel or to dig for gravel. Subsequently, movements of military vehicles continued to create bare patches in training areas but this activity has diminished owing to changes in military requirements and the release of land for development. The routes used by walkers, horse riders and even motorcycle scramblers have thus become the predominant resource for bare ground habitats within the areas affected by the plans.

The routes that provide bare ground habitat near the site of the proposed eco-town are subject to plans for the widening and/or the surfacing of existing tracks and the creation of others, together with a range of measures to encourage cyclists. Already, sections of a long-distance route, called Shipwright's Way, have been completed. This route will soon run all the way from Bentley railway station to Portsmouth, passing through heathland owned by the Ministry of Defence at Weaver's Down, not far from the intended eco-town.

Stephen Miles argues that heavy use of cycle routes like the Shipwright's Way will lead to degradation of the bare ground habitat by continually disturbing the sandy soil. He cites a Natural England report (NE, 2009), which points out that some of the species that require bare ground cannot survive if the sand is too loose to hold

their burrows or if they are disturbed too often. He has therefore been trying to convince non-entomologists that, while some degree of disturbance is essential in order to keep areas of ground bare, too much disturbance is harmful. With regard to Shipwright's Way, he predicts that the centre of the sandy track will become churned up by horse riders, so that cyclists and walkers will increasingly use the edges of the track, excessively disturbing the remaining areas of habitat.

It might be hoped that some of the habitat on sandy tracks might persist despite increased disturbance but there can be no such hope for other tracks that, according to plans, are to be covered with artificial surfaces in order to make them more suitable for cyclists. The surfaces would consist of materials such as stone or wood chippings, hoggin or gravel and they would therefore obliterate the bare ground habitats on the affected tracks. In certain areas, such as Hogmoor Inclosure and parts of a nature reserve run by the Deadwater Trust, surfacing is intended to take place before overwintering insects would have an opportunity to emerge, thus effectively exterminating populations. Also, much to the concern of Stephen Miles, limestone chippings might be used, thus locally altering the acid conditions that are required by various heathland plants and hence by the associated invertebrates.

Unfortunately, ground-dwelling invertebrates do not seem to be glamorous enough to be taken seriously by decision-makers. Most such people are generalists, who pride themselves on their ability to view the "bigger picture", rather than being distracted by minority opinions, however valid the latter might be. The Shipwright's Way, for example, will be understandably welcomed by many people who enjoy walking, cycling and horse riding. It forms part of the Sustrans National Cycle Network route 22, which will link Portsmouth with London. As such, it has been supported by The Forestry Commission, Hampshire County Council, East Hampshire District Council and South Downs National Park Authority, all of which are keen to promote physical recreation in the countryside.

Reference

NE (2009). *Access and Nature Conservation Reconciliation: Supplementary Guidance for England.* Natural England Report

Fen raft spider: translocation project in UK

The fen raft spider *Dolomedes plantarius* is one of only two spiders protected by law in the UK, the other being the Ladybird spider *Eresus*

niger (= *cinnaberinus*). It is also one of the largest spiders in the UK, with a body length up to 23 mm. As mentioned in *ICN* 46, its known distribution in the UK is restricted to three sites but it is thought to have been much more widespread many years ago, when suitable habitat occurred in many agricultural areas.

Among the reasons that are thought to explain the decline of the Fen Raft spider is its relatively long life-cycle. Unlike most other British spiders, it reaches maturity only in its third year, with the result that its populations take a long time to recover from decline caused by loss of degradation of habitat. It has been studied sufficiently to recognise its key habitat requirements, which include open, permanent, unshaded pools fed by unpolluted, base-rich waters, containing stiff-leaved emergent plants that can support the nursery webs in which the spiders rear their young. The Fen raft spider can cope with fluctuating water levels but cannot tolerate drying out.

Under a partnership project between Natural England and the Suffolk and Sussex Wildlife Trusts, the Fen raft spider is being translocated under licence to sites in East Anglia and southern England where conditions are deemed suitable. The spider would be unable to reach such sites naturally, since it has limited powers of dispersal and is unable to cross large areas of unsuitable terrain. Suitable sites include fens, rough wet grasslands and grazing marshes with high-quality ditch systems. Dr. Helen Smith, who has been working on the project, recognised that the East Anglian population of the spider at Redgrave and Lopham Fen was too small to withstand the removal of spiders for translocation. Other populations were available on the Pevensey Levels in East Sussex, nearly 200 km distant but there was a need to breed numerous offspring in captivity for a viable translocation. Using parents from both areas, Helen managed to raise about 4,000 spiderlings, while also making useful observations of the courtship and egg-carrying behaviour of the parents.

The first release of spiderlings took place last October on protected grazing marshes 50 km downstream from the existing population at Redgrave and Lopham Fen. There are plans to monitor the translocated colony in April and May of this year, in the hope that it will have survived the winter. Further translocation, depending on the initial results, is intended at this and other sites. Also, new pools are to be dug, in the immediate vicinity either of existing colonies or of newly established ones.

Buglife – The Invertebrate Conservation Trust has prepared an information sheet, prepared with the assistance of Helen Smith, that

gives guidance on the design of new ponds and on precautions to minimise any harm that could be caused to existing wildlife. Information can be obtained from The Fen Raft Spider Project (www.dolomedes.org.uk). Also, information about the related Million Ponds Project and about other aspects of pond creation can be found at: www.pondconservation. org.uk/millionponds or by e-mail enquiry to info@pondconservation. org.uk

RESEARCH NOTES

Neonicotinoid pesticides and honeybee colony collapse disorder: new paper could help with definitive research

In view of concerns, as mentioned in recent issues of *ICN* (e.g. *ICN* 69), the European Commission has proposed that EU member states restrict the use of the neonicotinoid pesticides clothianidin, imidacloprid and thiamethoxam in order to help avoid suspected sub-lethal harm to bees. The proposal is based on assessments by the European Food Safety Authority (EFSA, which indicate that certain risks are high and that others require further assessment (EFSA, 2013). The restriction, if imposed by the EU, would apply to the UK but the UK Department for Environment, Food and Rural Affairs (Defra) rejected a previous call for a ban, while commissioning studies in order to assess the impacts of neonicotinoids on bumblebees in field conditions.

Meanwhile, a number of UK retailers have recently removed from sale neonicotinoid chemicals thought to be linked to bee decline but Bayer, a leading producer of these products, maintains that they can be used without harm to bees.

Neonicotinoids first caused serious concern in 1999 among French beekeepers, whose honeybee colonies had been lost following the agricultural use of imidacloprid. The bees were believed to have been affected as a result of ingesting trace amounts in pollen and nectar. This association with the hitherto unexplained "honeybee colony collapse disorder" was reinforced by two later catastrophic episodes in 2008 and 2009 (see below).

There is a growing consensus in the environment sector, and increasingly in the wider scientific community, that neonicotinoids "*present a greater environmental safety risk than that set out in the official risk assessment*" (i.e. prior to the recent EFSA assessment); not

just to honeybees but also bumblebees and potentially to a much wider range of wildlife [see Buglife (2012) and citations therein].

Partly in response to this growing pressure, commercial companies that produce these insecticides have been critical of some of the empirical studies and of the conclusions drawn. Perhaps justifiably, they want to see more definitive studies on the effects of these pesticides. Providing that this research is unbiased and conclusive (as far as any rigorous scientific study can be) the results could prove invaluable at either putting our minds at ease or at forcing far greater control measures for the use of such chemicals.

The first step in this process has recently been taken by a team of highly respected researchers (Cresswell *et al.* 2012), who have re-evaluated previous research on neonicotinoid pesticides used in agriculture. They analyseshese data using a "structured process", employing the so-called Hill's epidemiological criteria and focussing on three main, public alarms about neonicotinoids, starting with the event in 1999 mentioned above. The second, in 2008, involving mass mortality of honeybees in Germany, was directly linked to misapplication of clothianidin. The third event was in 2009 when honeybees were thought to be imbibing traces of imidacloprid from guttation droplets on maize seedlings.

Research prompted by all these events is discussed but Hill's criteria are only used to judge the proposition that trace dietary neonicotinoids in nectar and pollen cause population declines in honeybees. The analysis by Cresswell's group, based on tried-and-tested ecological modelling, is salutary in that it points to un-supported laboratory assumptions and unexplored factors and interactions that have played a part in previous research.

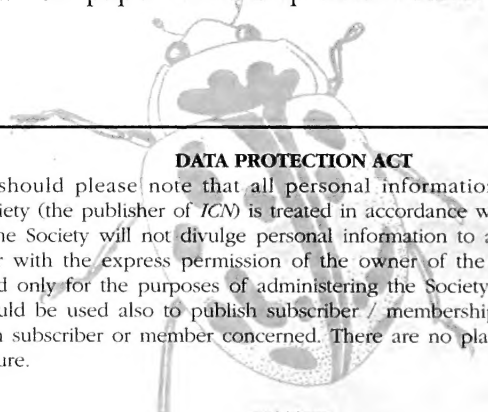
The group concludes that we cannot yet reliably implicate neonicotinoids in honeybee colony collapse disorder but that there remain big gaps in our knowledge. While uncertainty remains, the UK and other governments have been reluctant to restrict further the use of neonicotinoids. Also, they need to allow for potential reversion to older pesticides, which also pose environmental risks. Cresswell *et al.* (2012) identify an urgent need for further investigation in order to get to the bottom of this "long-standing uncertainty".

References

(Buglife, 2012). Buglife welcomes new report establishing neonicotinoid insecticides as high risk to bees: http://www.buglife.org.uk

Cresswell, J. Desneaux, N. & van Engelsdorp, D. (2012). Dietary traces of neonicotinoid pesticides as a cause of population declines in honey bees: an evaluation by Hill's epidemiological criteria. *Pest Management Science* **68**, 819-827.

CONTENTS



DATA PROTECTION ACT

ICN subscribers should please note that all personal information supplied to the Amateur Entomologists' Society (the publisher of *ICN*) is treated in accordance with UK legal requirements for data protection. The Society will not divulge personal information to any third party, except under legal obligation or with the express permission of the owner of the information. Currently, such information is used only for the purposes of administering the Society and the subscriptions that it receives, but it could be used also to publish subscriber / membership lists, subject to the express permission of each subscriber or member concerned. There are no plans to publish any such list in the foreseeable future.

NOTICE

Published by the Amateur Entomologists' Society
(Registered Charity No. 267430), from PO Box 8774, London SW7 5ZG.
Printed by Cravitz Printing Co. Ltd., 1 Tower Hill, Brentwood, Essex CM14 4TA.